

An

Inaugural Dissertation
on
Lithotomy
for the
Degree of Doctor of Medicine.
at the ^{Paper March}
University of Pennsylvania. 1828
By W^m J. Schusen.
Litho per J. J.
Philadelphia Jan 3 1st 1829.

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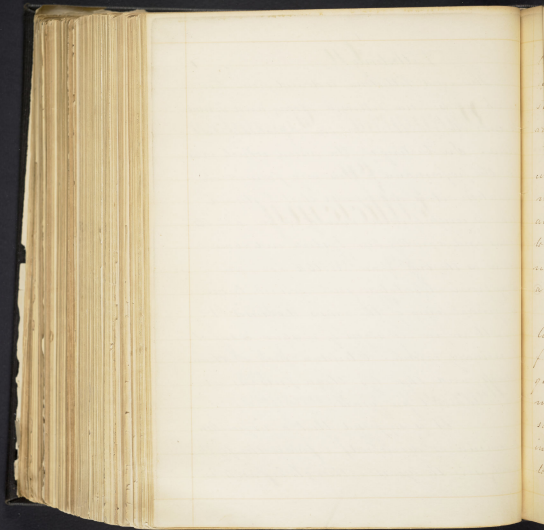
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Lithotomy.

The word Lithotomy is derived from two Greek words; *Lithos*, a stone, and *Tome* to cut, the operation for the extraction of a stone. In treating of the disease which calls for the performance of this very formidable operation, it is not improper that I should take a comprehensive view of it in all its forms and varieties, but I shall endeavour as far as the brief space allotted for an inaugural dissertation will permit, to give a general view of the causes, signs, &c.

It is in all stages of existence is subject to urinary calculi. Children more so than adults, and those less than persons who are advanced in years.

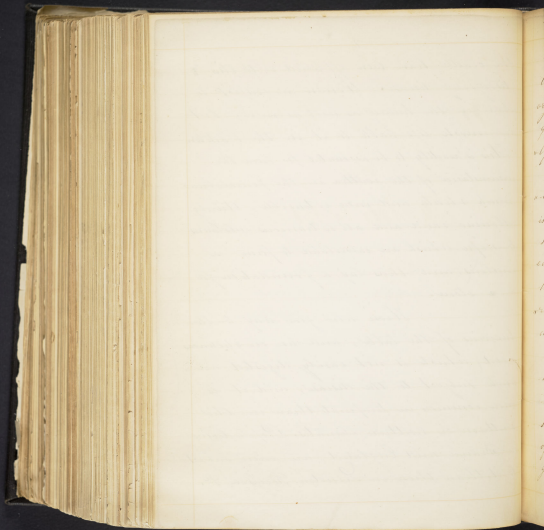
It is supposed that a disposition to calculi is developed between the fifth and ninth years, although infants in



the cradle have been afflicted with this distressing disease. Women are subject to slow in the kidneys as well as men, but are much less liable to it in the latter.

This is readily to be accounted for from the circumstance of the excreta in the female being much shorter and more exuberant, thereby allowing sand and all extraneous substances to escape which are calculated to form a nucleus, and thus lay a foundation for a stone.

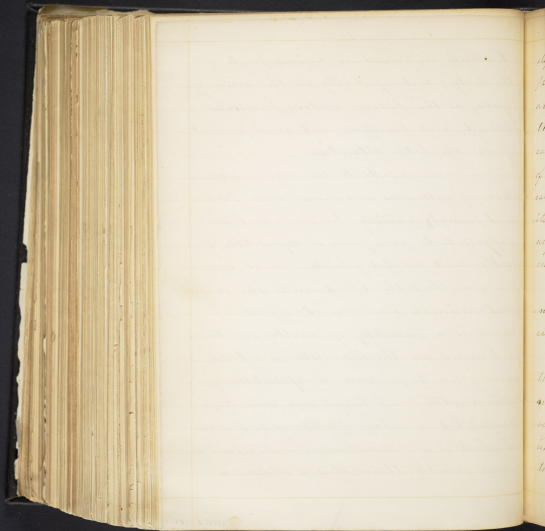
Those who give way to the luxuries of the table, and live on glutinous food, which is not easily digested are quite subject to the disease, and it is more common in temperate than in the southern or northern climates. People living in France and England, are more subject to it, than those in Sweden, Prussia, &c.



Calculi are found in various parts of the body; but especially in the urinary organs, as the kidneys, ureters, prostate gland, and bladder; but most frequently in the latter situation.

As to the original formation of calculous concretions, little I believe is at present positively known; but ^{they are} supposed to arise from a deposition of earthy and secreted fluids; for it is well known that the blood and the different animal secretions it affords by analysis is a quantity of earthy substance.

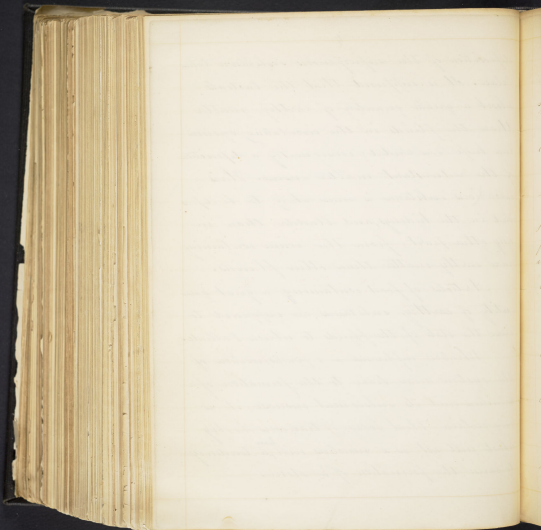
Various are the circumstances which may occur to produce a deposition of this matter. A liquid can only keep suspended a certain portion of substances of which it is a menstruum, and when a greater quantity than this is added a



deposition of the superfluous substance takes place. It is supposed that the last tends about a greater quantity of earthy matter than the fluids in the circulating system can keep suspended; consequently a deposition of the redundant matter occurs. This calcareous substance is more likely to be deposited in the kidneys, and bladder, than in any other part, from the urine containing more earthy matter than other fluids.

Articles of food containing a great quantity of earthy substances are supposed to cause the state of the fluids to which I allude.

Whatever influences a predisposition of the system may have to the formation of a calculus and its subsequent increase, it is very certain that every extraordinary body which will act as a nucleus will ^{have} a tendency to cause the formation of a stone.



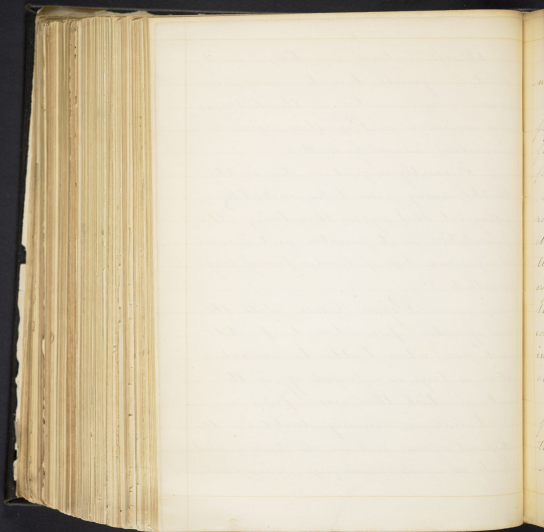
Thus for instance a particle of sand, blood, is coagulable lymph, arising from spasm or inflammation of the kidneys, may acquire a great ^{size} in those organs from a constant increase of matter.

Frequently in fact a stone in the bladder, arising from bodies accidentally getting into that organ, thus laying the foundation for its formation and increase in size, as a drop of blood, a piece of bougie, or catheter &c.

Professor Gibson relates the case of a boy from whom he extracted, and from whose bladder he removed a stone as large as a pullet's egg in the centre of which there was a pin.

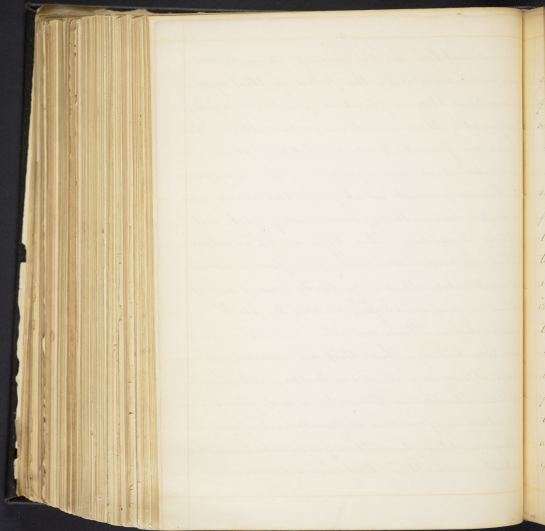
Dr. Ke

Calculi are variously located in the different organs, and we also find a great variety in respects number, size, form, consistence



Where in the kidney the numerous
 situation is in the pelvis of that organ;
 sometimes they are found in particular cysts;
 frequently there is but one; again three or
 four are found. Cases are related of there a
 few hundred being found in the same kidney.
 They vary much in shape; they are sometimes
 rounded, oval, oblong, some nearly flat, and
 others angular. They differ no less in colour
 than in shape: some have been found nearly
 as white as milk, others gray, black, brown, & yellow;
 this varying in ^{colour} shape, according to their
 composition. Stones are either movable or fixed
 in the kidney. Those that are rounded, small,
 and oblong, may descend into the ureters.

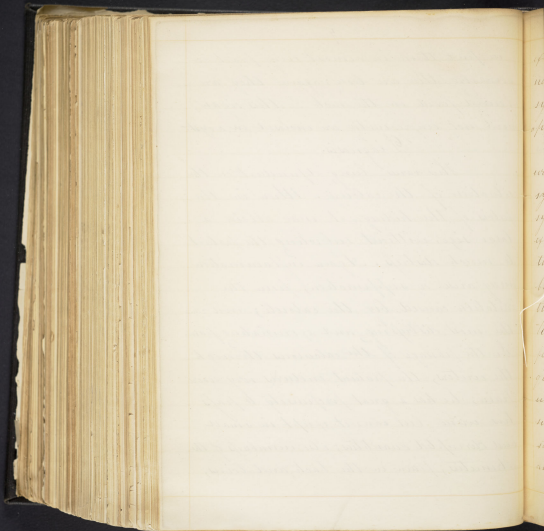
Their situation in the ureter is not fixed;
 for they are found in different parts, frequently
 they are detained in their passage to the bladder.
 As it respects their location in the bladder,



in fact there in almost every part, generally they are loose; again they are found fixed in the neck of this organ, and not infrequently are enclosed in a cyst.

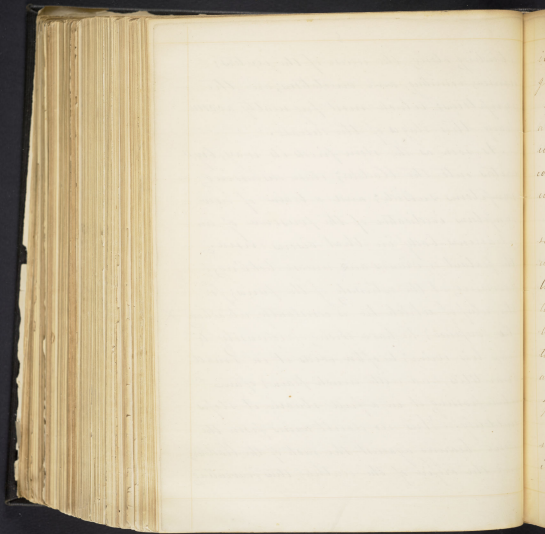
Diagnosis.

This varies, being dependent on the situation of the calculus. When in the pelvis of the kidney, it may attain a large size, without subjecting the patient to much distress. Again inflammation may arise, or suppuration, from the irritation caused by the calculus; and cause the most distressing, and excruciating pain. In the passage of the calculus through the ureters, the patient endures very severe pain; he has a great propensity to pass his urine but cannot expel in small and frequent quantities; also numbness of the extremities; pain in the back, and loins,



glutting along the course of the ureters;
nausea, vomiting, and convulsions; are the
symptoms which most frequently accom-
pany this stage of the disease.

As soon as the stone finds its way, by a
ureter into the bladder; these distressing
symptoms subside; and a train of new
symptoms indicative of the presence of an
extraneous body in that viscous cavity;
the patient experiences an uneasy itching,
burning at the extremity of the penis; for
the relief of which he is constantly retracting
the foreskin; he has a strong propensity to
pass his urine; he often voids it in small
quantities, and with much pain; if time
while passing it in a full stream it stops
suddenly. This no doubt arises from the
stone bearing against the neck of the bladder,
and the orifice of the urethra, thus preventing

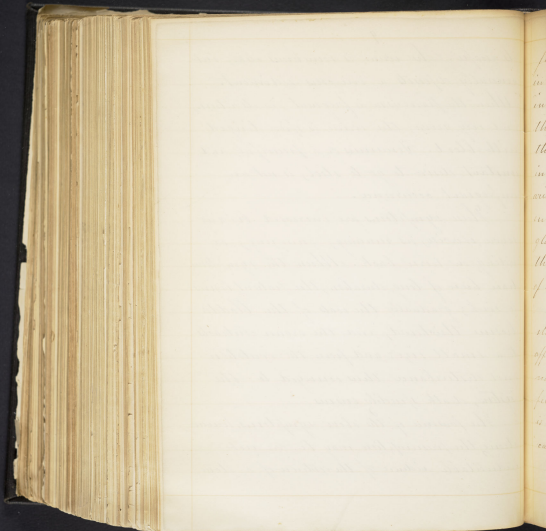


its shape. The urine is sometimes clear, but generally deposits a mucous sediment.

When the paroxysm is frequent in its return, and very severe, the urine is often tinged with blood. Venousness or a powerful and constant desire to go to stool, is not an unfrequent occurrence.

These symptoms are increased by any severe exercise, as running, jumping, or riding on horse back. When the symptoms have been of long duration, the patient begins to sink; gradually the coats of the bladder become thickened, and the organ contracts to a small size; and from the irritation and disturbance thus conveyed to the system, death speedily ensues.

The presence of the above symptoms, however strong the presumption may be, are not indubitable evidence of the existence of a stone.

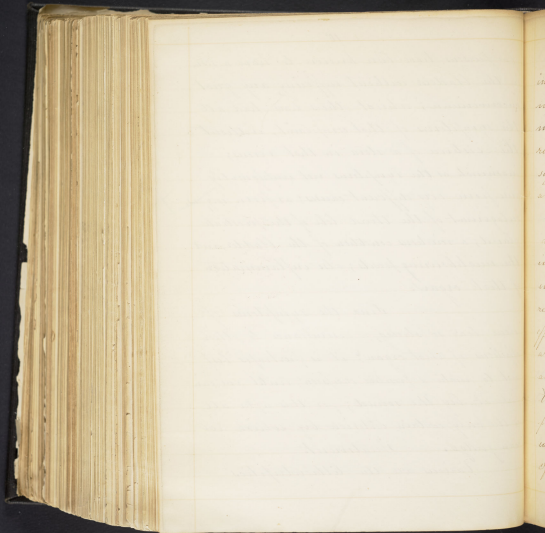


for persons have been known to have a stone in the bladder without suffering any great inconvenience; whilst others have had all the symptoms of that complaint, without the existence of a stone in that viscus; inasmuch as the symptoms not infrequently arise from very different causes; as from prostatic enlargement of the third lobe of the prostate gland; a morbid condition of the bladder, and the neighbouring parts; also inflammation of that organ.

Since the symptoms of stone bear so strong a resemblance to other affections of that organ; it is perhaps best not to make a positive decision, until we can feel it by the sound; for this after all is the only certain criterion by which we can judge.

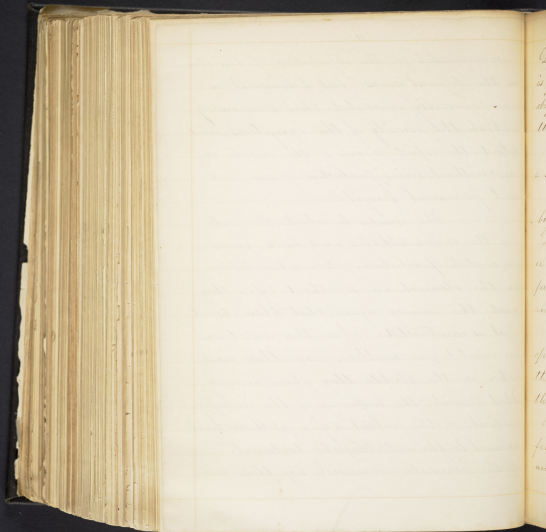
Treatment.

Various are the lithenterics



recommended for the dissolution of the stone in the different organs; but I believe it is now generally conceded that they merely mitigate the severity of the symptoms, and retard the rapid progress of the calculus in size without being productive of any real and permanent benefit.

The remedies to which I allude are the various alkalies, and acids, given in a state of solution. Thus when taken in the stomach are so altered before they reach the urinary organs, that their desired effect is counteracted. When these substances are injected per urethram per se, their severe action on the bladder, they often increase that irritation, the sufferings of the unhappy patient. If the patient is of a phlegmatic habit, we resort to the antiphlogistic treatment. If the pains do not subside by these means



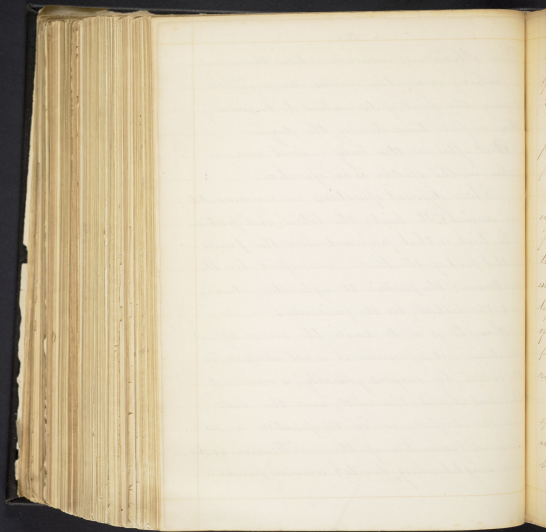
Doct. Pott recommends when the stone is passing along the ureters, ten or fifteen drops of the spirit of turpentine to be given three or four times during the day.

But after all the only radical cure for a stone in the bladder is an operation.

Three different operations are recommended by surgical ^{Writers} the high, the lateral, and posterior. The high is that performed above the pubis in that part of the bladder uncovered by the peritonæum; the posterior through the rectum; and the lateral, by the perineum.

I might go on to describe the several different operations, but I presume it is not necessary, as the lateral, by surgeons generally, is considered the most eligible, the safest, and the best.

As the chief danger in this operation arises from inflammation of the peritonæum and neighbouring parts; common procedure

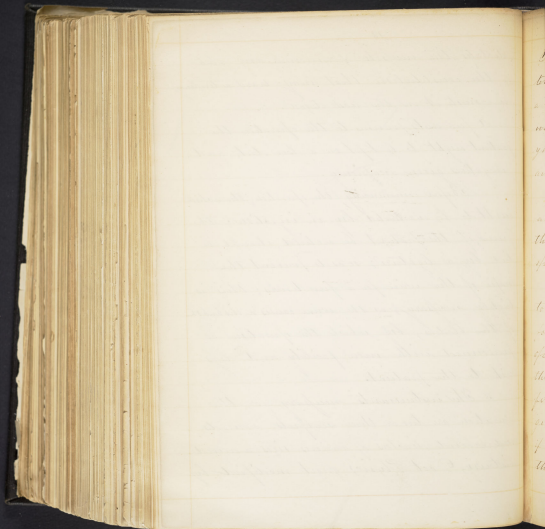


dictates the necessity of receiving any state of the constitution that may have a tendency to promote it in the best degree.

A few ante-operations to the operation the patient ought to be kept on a low diet, and purgatives given occasionally.

Before commencing the operation, the action ought to be excited by an injection; the penis, if the patient be a child, should be tied by a ligature; so as to prevent the escape of the urine for a few hours; this is highly necessary, as the urine causes a distention of the bladder, by which the operation is performed with more facility and less risk to the patient.

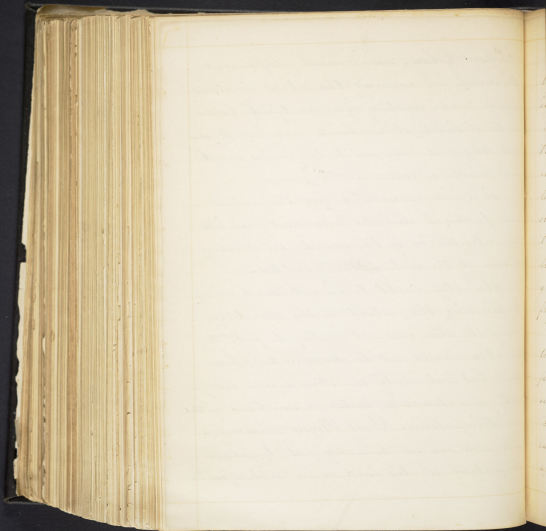
The instruments necessary for the operation are two or three scalpels, scissors, and several dividers of various sizes, a curved bistoury, Doel's Physic; gagel modified by



Professor Gibson; several small forceps and
 trussula, for securing the arteries: ligatures,
 a large puncture injecting syringe; tepid barley
 water strained; strong bands from four to five
 yds long and from one to two inches broad
 and a cup of warm oil.

It is now advisable to give the patient
 an opiate; it mitigates pain and facilitates
 the introduction of the sound by relaxing
 spasm at the neck of the bladder.

The staff ought to be introduced previous
 to binding the patient for the operation;
 for if the stone can not readily be felt, the
 operation should not be commenced. When
 the patient is at liberty the stone is more easily
 felt for a change of position is sometimes of the
 greatest importance. Doct. Puyssie recommends
 if the stone can not be readily felt, to place
 the patient on his back, or in such a position

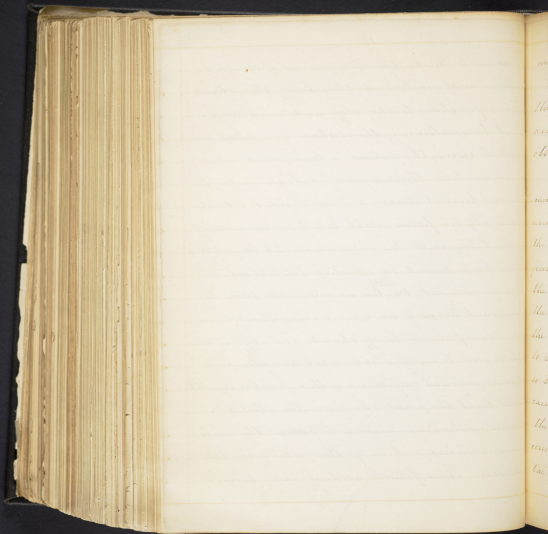


is to make the upper extremity of the bladder the lowest part, and thus bring the stone in apposition to the staff and its point.

After maintaining the position of a stone in that viscus, the patient is to be placed on a narrow table three or four feet high with the head turned down, and a blanket covered over it; his pelvis ought to rest on the side of the table, with his shoulders supported by pillows, his limbs spread by directing the patient to cross his feet ^{sitting} his hands, and then by frequent turns of the roller binding them down.

The perineum being shaved the staff is next to be given to an assistant in whom you can place implicit confidence; with a positive injunction not to let the point slip from the bladder.

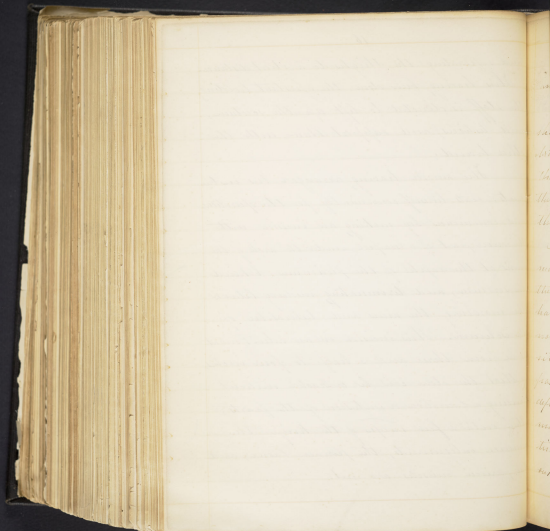
Two assistants are required to secure the limbs, each receiving a knee of the patient in their axillae thus firmly holding the limbs



and separating the thighs to a short distance.

This having been done, the assistant holding the staff is directed to lift up the scrotum, and testicles, and support them with the other hand.

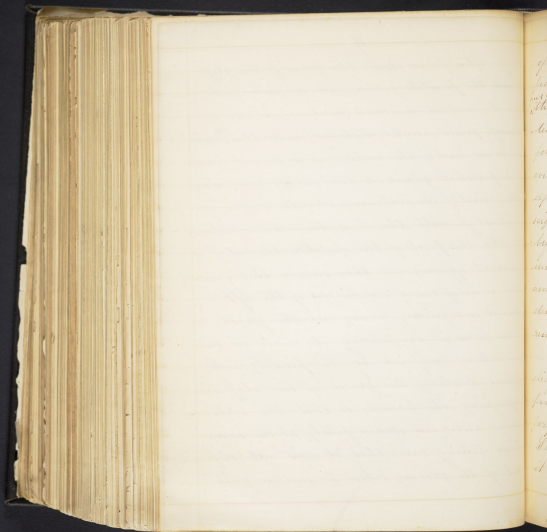
The surgeon having arranged his instruments, seats himself conveniently for the operation, and commences by making an incision with the curved part of a scalpel, under the arch of the glands at the nape of the perineum, behind the scrotum, and traversing midway between the margin of the anus and tuberosities of the ischium. This incision in an adult ought to be from three and a half to four inches, so that the stone could be extracted without causing a laceration or contusion of the parts; then with a few snips of the knife the common integuments, the perineal fascia, and the perineal muscles are cut.



This being done, the groove of the staff
into the prostate gland can be easily felt.

The scalpel is now to be changed for a
sharp, pencil pointed bistoury; with this ^{the} mem-
branous part of the cuticle is to be cut from
the prostate gland to the bulb, by placing
the point of the instrument in the groove of
the staff, with the back towards the rectum.

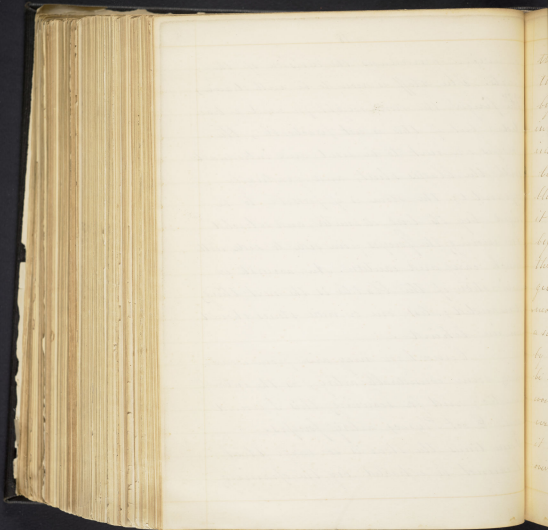
By this part of the operation the staff is
made to appear; then the surgeon then places
the nail of end of the fingers of the left
hand as a guide; having oiled the gorget; he
now fixes it by placing the back in the
situation occupied by the finger; and
passes it along the groove of the staff and
compressing the handles so that the beak may
move along its convex part; at the same
time taking care that it does not slip
out of the groove; when a sudden gush



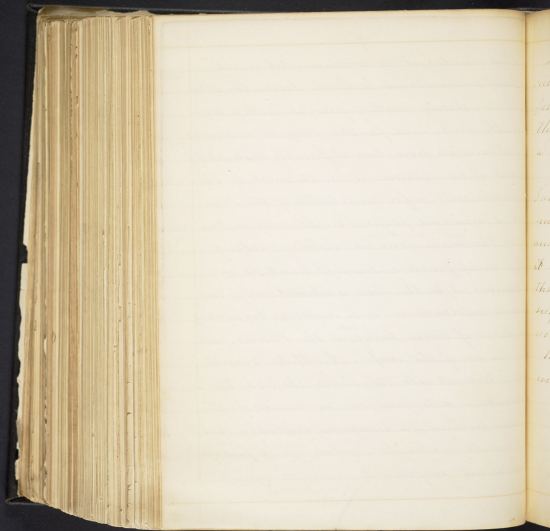
of which surrounds the division of the parts. The staff is now to be with chain, ^{not by} the finger, the stone ought for and to be held; but if this is not practicable, the forceps are next to be used, and introduced with the blades shut; and gradually expanded; the stone is if possible to be seized by its long diameter, and extracted by moving the forceps from side to side with much care and caution. The accurate examination of the bladder is the next thing demanded; lest one or more stones should remain behind.

Hæmorrhage may arise from wounding some considerable artery, as the internal pudic; and for securing this I would prefer Doct. Pons's artery forceps.

Sometimes the stone is so large that it cannot be extracted by the opening,



thus made; it is recommended under
 these circumstances to break above the stone
 by a strong pair of forceps, with a screw
 in the end; and for this purpose numerous
 instruments have been differently constructed;
 but if an enlargement in the neck of the
 bladder will suffer an extraction of the stone
 it is considered preferable. It may be done
 by the sharp pointed bistoury, taking
 the circumference of the left hand as a
 guide. After the stone is extracted all ex-
 traneous substances are to be removed, by injecting
 a stream of warm barley ^{water} in the bladder, and
 by the use of the scoop. A catheter should
 be introduced into the bladder through the
 wound, so as to facilitate the passage of the
 urine without the inconvenient irritation that
 it would necessarily produce in its passage
 over a cut surface.



The operation being finished, and the bandages removed from the limbs; the patient is to be placed in bed, on his left side, or back, his thighs bound to each ^{ankle} and covered with a light coverlet.

In closing this imperfect sketch, I am sensible of its deficiencies, and imperfections, unaccustomed to compositions of this nature, and young in practical experience I found it no little difficulty in complying with that requisite of our University; to select a subject, and to form a production, that would be of interest and importance.

What I have written I cheerfully submit without further comment.

Yours &c. &c.

Wm. W. W.

1788

